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## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 13228.00025	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/15693	International filing date (day/month/year) 08 June 2000 (08.06.2000)	Priority date (day/month/year) 09 June 1999 (09.06.1999)
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 35/78 and US Cl.: 424/738; 514/54		
Applicant WISCONSIN ALUMNI RESEARCH FOUNDATION		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>0</u> sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 05 January 2001 (05.01.2001)	Date of completion of this report 12 September 2001 (12.09.2001)	
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer <i>Jayle Bridges</i> Francisco C. Prats Telephone No. (703)308-0196	

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/15693

**I. Basis of the report****1. With regard to the elements of the international application: \***

- ☒ the international application as originally filed.
- ☒ the description:  
pages 1-33 as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
pages 34-37 as originally filed  
pages NONE, as amended (together with any statement) under Article 19  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☐ the drawings:  
pages NONE as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
pages NONE as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of**

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>5 and 24-27</u>	YES
	Claims <u>1-4, 6-13 and 18-23</u>	NO
Inventive Step (IS)	Claims <u>5</u>	YES
	Claims <u>1-4 and 6-27</u>	NO
Industrial Applicability (IA)	Claims <u>1-27</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-4, 6-11 and 18-23 lack novelty under PCT Article 33(2) as being anticipated by Laidlaw et al (J. Chem. Soc. 1950, pages 528-534)(Laidlaw I). Specifically, Laidlaw I discloses a polysaccharide preparation from *Plantago ovata* Forsk, designated as "PII", said preparation comprising 80% xylose, 14% arabinose and no rhamnose, said preparation being highly viscous. See page 529. Thus, Laidlaw I's composition contains all of the claimed ingredients in the claimed amounts. Note specifically that the recitation "comprising less than about 2% (by weight) rhamnose" encompasses zero. Note further that the reference clearly anticipates the dosage amounts recited in the claims since any amount would have some beneficial effect. Note further that product clearly would be preparable by the method recited in claim 13.

Claim 12 lacks novelty under PCT Article 33(2) as being anticipated by Laidlaw et al (J. Chem. Soc. 1949, pages 1600-1607)(Laidlaw II). Specifically, Laidlaw II discloses a polysaccharide preparation from *Plantago ovata* Forsk, designated as "PII", said preparation comprising 46% xylose, 7% arabinose and 40% 2-D-galacturonosido-L-rhamnose, a disaccharide comprised of equal parts galacturonic acid and rhamnose. See page 1600. Thus, Laidlaw II's "PI" composition contains 20% of each of galacturonic acid and rhamnose. Laidlaw II's composition therefore contains all of the claimed ingredients in the claimed amounts.

Claims 13 and 18-23 lack novelty under PCT Article 33(2) as being anticipated by Kennedy et al (Carb. Res. 75:265-274 (1979)). Kennedy discloses a process whereby a polysaccharide fraction is obtained from psyllium by initial alkali treatment followed by acidification. Thus Kennedy not only anticipates process claim 13, but also claims directed to the product produced thereby.

Claims 13-23 lack an inventive step under PCT Article 33(3) as being obvious over by Kennedy et al (Carb. Res. 75:265-274 (1979)). As discussed above, Kennedy discloses a process whereby a polysaccharide fraction is obtained from psyllium by initial alkali treatment followed by acidification. Although Kennedy differs from the claimed process by using slightly different pH conditions, optimization of a process to determine suitable conditions for that process is well known in the art and therefore *prima facie* obvious.

Claims 24-27 lack an inventive step under PCT Article 33(3) as being obvious over Kennedy et al (Carb. Res. 75:265-274 (1979)) in view of Laidlaw et al (J. Chem. Soc. 1950, pages 528-534)(Laidlaw I). Note specifically that the therapy claims encompass administration of unfractionated psyllium for constipation. Kennedy discloses that psyllium is known to have therapeutic properties with respect to large bowel disorders. As also discussed above, psyllium is known to contain the polysaccharide recited in the claims. Thus, taken together, the references clearly provide motivation for administering a product containing the claimed therapeutic agent to the claimed patient.

Claim 5 meets the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest a polysaccharide from psyllium having the claimed saccharide makeup.

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 21 March 2001 (21.03.01)	
<b>International application No.</b> PCT/US00/15693	<b>Applicant's or agent's file reference</b> WARF M155PCT
<b>International filing date</b> (day/month/year) 08 June 2000 (08.06.00)	<b>Priority date</b> (day/month/year) 09 June 1999 (09.06.99)
<b>Applicant</b> MARLETT, Judith, A. et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

05 January 2001 (05.01.01)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Christelle Croci

Telephone No.: (41-22) 338.83.38

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/15693

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 31/715, 35/78

US CL : 514/54; 424/195.1

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/54; 424/195.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

psyllium, gcl, polysaccharide, alkali, xylose, arabinose, rhamnose, galactose, galacturonic acid, glucose, mannose

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	LAIDLAW et al. Studies of Seed Mucilages. Part V. Examination of a Polysaccharide extracted from the Seeds of Plantago ovata Forsk by Hot Water. Journal of the Chemical Society. 1950, pages 528-534, especially page 529.	1-4, 6-11, 18-23 ----- 24-27
X	LAIDLAW et al. Studies on Seed Mucilages. Part III. Examination of a Polysaccharide extracted from the Seeds of Plantago ovata Forsk. Journal of the Chemical Society. 1949, pages 1600-1608, especially page 1600.	12
X ----- Y	KENNEDY et al. Structural Data for the Carbohydrate of Ispaghula Husk ex Plantago ovata Forsk. Carbohydrate Research. 1979, Vol. 75, pages 265-274, especially pages 266, 271 and 273.	13-23 ----- 24-27

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T*	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*B* earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A*	document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means		
*P* document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

02 AUGUST 2000

Date of mailing of the international search report

06 SEP 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

FRANCISCO C. PRATS

Telephone No. (703) 308-0196

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/15693

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SANDHU et al. The Gel Nature and Structure of the Carbohydrate	13-23
-----	of Ispaghula Husk ex Plantago ovata Forsk. Carbohydrate	-----
Y	Research. 1981, Vol. 93, pages 247-259, especially page 253,	24-27
Y	US 5,234,916 A (HORD) 10 August 1993, see whole document.	24-27
A	US 5,248,502 A (NDIFE) 28 September 1993.	1-27

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PATENT COOPERATION TREATY

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SEP 28 2001

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITYDOCKET DEPT.  
WWKMN

SEP 03 2001

SAUL EWING REMICK  
& SAUL LLP

PCT

NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

To:  
JANET E. REED  
SAUL, EWING, REMICK & SAUL LLP  
CENTRE SQUARE WEST  
1500 MARKET STREET, 38TH FLOOR  
PHILADELPHIA, PA 19102-2186

Date of Mailing  
(day/month/year)

26 SEP 2001

Applicant's or agent's file reference

13228.00025 WARE-0006

## IMPORTANT NOTIFICATION

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US00/15693

08 June 2000 (08.06.2000)

09 June 1999 (09.06.1999)

Applicant

WISCONSIN ALUMNI RESEARCH FOUNDATION

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Form PCT/IPEA/416 (July 1992)

Authorized officer  
Francisco C Prats

Telephone No. 703-308-0196

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 13228.00025	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/15693	International filing date (day/month/year) 08 June 2000 (08.06.2000)	Priority date (day/month/year) 09 June 1999 (09.06.1999)
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 35/78 and US Cl.: 424/738; 514/54		
Applicant WISCONSIN ALUMNI RESEARCH FOUNDATION		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>0</u> sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 05 January 2001 (05.01.2001)	Date of completion of this report 12 September 2001 (12.09.2001)	
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer <i>Francisco C. Prats</i> Telephone No. (703)308-0196	

Form PCT/IPEA/409 (cover sheet)(July 1998)



**I. Basis of the report****1. With regard to the elements of the international application: \***

- ☒ the international application as originally filed.
- ☒ the description:  
pages 1-33 \_\_\_\_\_ as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
pages 34-37 \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, as amended (together with any statement) under Article 19  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☐ the drawings:  
pages NONE \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
pages NONE \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

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\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>5 and 24-27</u>	YES
	Claims <u>1-4, 6-13 and 18-23</u>	NO
Inventive Step (IS)	Claims <u>5</u>	YES
	Claims <u>1-4 and 6-27</u>	NO
Industrial Applicability (IA)	Claims <u>1-27</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-4, 6-11 and 18-23 lack novelty under PCT Article 33(2) as being anticipated by Laidlaw et al (J. Chem. Soc. 1950, pages 528-534)(Laidlaw I). Specifically, Laidlaw I discloses a polysaccharide preparation from *Plantago ovata* Forsk, designated as "PII", said preparation comprising 80% xylose, 14% arabinose and no rhamnose, said preparation being highly viscous. See page 529. Thus, Laidlaw I's composition contains all of the claimed ingredients in the claimed amounts. Note specifically that the recitation "comprising less than about 2% (by weight) rhamnose" encompasses zero. Note further that the reference clearly anticipates the dosage amounts recited in the claims since any amount would have some beneficial effect. Note further that product clearly would be preparable by the method recited in claim 13.

Claim 12 lacks novelty under PCT Article 33(2) as being anticipated by Laidlaw et al (J. Chem. Soc. 1949, pages 1600-1607)(Laidlaw II). Specifically, Laidlaw II discloses a polysaccharide preparation from *Plantago ovata* Forsk, designated as "PII", said preparation comprising 46% xylose, 7% arabinose and 40% 2-D-galacturonosido-L-rhamnose, a disaccharide comprised of equal parts galacturonic acid and rhamnose. See page 1600. Thus, Laidlaw II's "PI" composition contains 20% of each of galacturonic acid and rhamnose. Laidlaw II's composition therefore contains all of the claimed ingredients in the claimed amounts.

Claims 13 and 18-23 lack novelty under PCT Article 33(2) as being anticipated by Kennedy et al (Carb. Res. 75:265-274 (1979)). Kennedy discloses a process whereby a polysaccharide fraction is obtained from psyllium by initial alkali treatment followed by acidification. Thus Kennedy not only anticipates process claim 13, but also claims directed to the product produced thereby.

Claims 13-23 lack an inventive step under PCT Article 33(3) as being obvious over by Kennedy et al (Carb. Res. 75:265-274 (1979)). As discussed above, Kennedy discloses a process whereby a polysaccharide fraction is obtained from psyllium by initial alkali treatment followed by acidification. Although Kennedy differs from the claimed process by using slightly different pH conditions, optimization of a process to determine suitable conditions for that process is well known in the art and therefore *prima facie* obvious.

Claims 24-27 lack an inventive step under PCT Article 33(3) as being obvious over Kennedy et al (Carb. Res. 75:265-274 (1979)) in view of Laidlaw et al (J. Chem. Soc. 1950, pages 528-534)(Laidlaw I). Note specifically that the therapy claims encompass administration of unfractionated psyllium for constipation. Kennedy discloses that psyllium is known to have therapeutic properties with respect to large bowel disorders. As also discussed above, psyllium is known to contain the polysaccharide recited in the claims. Thus, taken together, the references clearly provide motivation for administering a product containing the claimed therapeutic agents to the claimed patient.

Claim 5 meets the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest a polysaccharide from psyllium having the claimed saccharide makeup.